

We claim:

1. A method for detecting neoplasia, a precancerous condition, or cancer of the breast in a subject comprising treating a sample of breast fluid from the subject with an aldehyde detecting reagent where the detection of a change produced by the aldehyde detecting reagent compared to a control is indicative of neoplasia, a precancerous condition, or cancer.
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2. A method of claim 1 comprising the following steps:
 - a) obtaining a sample of breast fluid from a subject;
 - b) depositing the sample on a solid support;
 - c) treating the sample with an aldehyde detecting reagent without any prewashing;
 - 10 d) detecting a colorimetric change produced in the sample, where detection of a colorimetric change compared to a control is indicative of neoplasia, a precancerous condition, or cancer of the breast.
3. A method of claim 1 for detecting a neoplasia, a precancerous condition, or cancer of the breast in a subject, which method comprises:
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 - a) obtaining a sample of breast fluid from a subject;
 - b) depositing the sample on a solid support;
 - c) treating the sample on the support with a Schiff's reagent without any prewashing; and
 - d) detecting a colorimetric change resulting from the reaction of the sample and Schiff's reagent wherein a colorimetric change is indicative of neoplasia, a precancerous condition, or cancer of the breast.
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4. A method as claimed in claim 1 comprising:
 - a) obtaining a sample of breast fluid from a subject;
 - b) depositing the sample on a solid support;
 - c) treating the sample on the support with a Schiff's reagent without any prewashing;
 - 25 d) washing the support carrying the sample; and
 - e) detecting a colorimetric change resulting from the reaction of the sample and Schiff's reagent wherein a colorimetric change is indicative of neoplasia, precancer or cancer of the breast.
5. A method of claim 1 for detecting the presence of neoplasia, a precancerous condition, or cancer of the breast, which method comprises:
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 - (a) obtaining a sample of breast fluid from the nipple of one or both non-lactating breasts of a subject;
 - (b) depositing the collected sample on a solid water-insoluble support;
 - (c) treating the sample on the support with a Schiff's reagent without any prewashing;
 - 35 (d) washing the sample; and
 - (e) screening for neoplasia, a precancerous condition, or cancer of the breast by persistent purple coloration produced in the sample.
6. A method of claim 5 wherein the breast fluid is breast discharge, ductal secretion, or nipple aspirate fluid.

7. A method for detecting neoplasia, a precancerous condition, or cancer of the breast in a subject comprising obtaining from the subject a sample suspected of containing an aldehyde marker associated with breast cancer, and detecting the presence of the aldehyde marker in the sample.
8. A method of claim 7 wherein the aldehyde marker is capable of reacting with a Schiff's reagent to produce a colorimetric change.
9. A method as claimed in claim 7 or 8 wherein the aldehyde marker comprises low molecular weight aldehydes that are soluble in water.
10. A method of claim 7, 8, or 9 for detecting neoplasia, a precancerous condition, or cancer of the breast in a subject comprising: (a) obtaining a sample of breast fluid from the subject; (b) detecting in the sample one or more aldehyde markers associated with breast cancer; and (c) comparing to a control.
11. A method of claim 7, 8, or 9 for detecting neoplasia, a precancerous condition, or cancer of the breast in a subject by quantitating one or more aldehyde markers associated with breast cancer in a sample of breast fluid from the subject comprising:
 - (a) treating the sample with an aldehyde detecting reagent; and
 - (b) measuring a detectable change produced by the aldehyde detecting reagent in the presence of an aldehyde marker; wherein a change in the amount or level of the detectable change compared to a control is indicative of neoplasia, a precancerous condition, or cancer of the breast.
12. A method for detecting the presence of neoplasia, a precancerous condition, or cancer of the breast, which method consists essentially of obtaining a sample of breast fluid from the breast of a subject; treating the sample with a Schiff's reagent; and, detecting neoplasia, a precancerous condition, or cancer of the breast based upon the coloration produced in the sample by the treatment.
13. A method as claimed in claim 12 wherein the coloration is distinguished from other colorations.
14. A method as claimed in claim 12 or 13 wherein the breast fluid is nipple aspirate or nipple aspirate fluid.
15. A method as claimed in claim 12, 13, or 14 wherein the breast fluid is nipple discharge.
16. A method as claimed in claim 12, 13, or 14 wherein the breast fluid is ductal secretion.
17. A method as claimed in any one of claims 12 to 16 wherein the sample is adsorbed on a water-insoluble substrate.
18. A method as claimed in claim 17 wherein the water-insoluble substrate is made from polyester fibre, polymacron, or glass fibre fabrics.
19. A method as claimed in any of the preceding claims wherein the sample is additionally screened for the presence of other markers that are indicators of breast cancer.
20. A method for imaging a breast tumor from a subject comprising (a) incubating the tumor with an aldehyde detecting reagent for a sufficient period of time to permit the aldehyde detecting reagent to react with aldehyde markers associated with breast cancer in the tumor, where the reagent carries a label for imaging the tumor; and (b) detecting the presence of the label localized to the tumor.

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21. An *in vivo* method comprising administering to a subject a reagent that has been constructed to target one or more aldehyde markers associated with breast cancer.
22. A method as claimed in claim 20 or 21 wherein the aldehyde markers associated with breast cancer comprise low molecular weight aldehydes that are soluble in water.
- 5 23. A kit for carrying out a method of any preceding claim.